ATTACHMENT B

TABLE 1-continued

Example	1	2	3	4	CE
FCM [N/mm²]	1270	1200	1240	1280	1275
SR rheometer [%]	200	151	153	143	91
SCR [h]	3.7	16	84.2	84.1	39

The abbreviations for the physical properties in Table 1 have the following meanings:

FCM=flexural creep modulus, measured in accordance with ISO 54852-Z4 in N/mm² as the one-minute value,

SCR=stress cracking resistance of the moulding compound according to the invention. It is determined by an internal measurement method. This laboratory method has been described by M. Fleißner in Kunststoffe 77 (1987), pp. 45 ff. This publication shows that there is a correlation between the determination of slow crack growth in the creep test on test bars with all-round notches and the brittle branch in the long-term failure test under internal hydrostatic pressure in accordance with ISO 1167. A shortening of the time to failure is achieved by shortening the crack initiation time by the notches (1.6 mm/razor blade) in ethylene glycol as stress crack-promoting medium at a temperature of 80° C. and a tensile stress of 3.5 MPa. The samples are produced by sawing three test specimens measuring 10×10×90 mm out of a pressed sheet with a thickness of 10 mm. The test specimens are provided with all-round notches in the centre using a razor blade in a notching device produced especially for the purpose (shown in FIG. 5 in the publication by Fleißner). The notch depth is 1.6 mm.

FT=fracture toughness of the moulding compound according to the invention. It is likewise determined by an internal measurement method on test bars measuring 10×10×80 mm which had been sawn out of a pressed sheet with a thickness of 10 mm. Six of these test bars are notched in the centre using a razor blade in the notching device mentioned above. The notch depth is 1.6 mm. The measurement is carried out substantially in accordance with the Charpy measurement method in accordance with ISO 179 with modified test specimens and modified impact geometry (distance between supports). All test specimens are conditioned to the measurement temperature of 0° C. over a period of from 2 to 3 hours. A test specimen is then placed without delay onto the support of a pendulum impact tester in accordance with ISO 179. The distance between the supports is 60 mm. The drop of the 2 J hammer is triggered, with the drop angle being set to 160°, the pendulum length to 225 mm and the impact velocity to 2.93 m/sec. In order to evaluate the measurement, the quotient of the impact energy consumed and the initial cross-sectional area at the notch a_{FM} in mJ/mm² is calculated. Only values for complete fracture and hinge fracture can be used here as the basis for a common mean (see ISO 179).

SR=swelling rate, measured in a high-pressure capillary rheometer at a shear rate of 1440 1/s in a 2/2 round-hole die with a conical entry (angle=15°) at a temperature of 190° C.

The measurement values clearly show that the moulding compound according to the invention in all cases resulted in better strength properties and also had better processing properties during production.

TABLE 2

For hollow articles testing, 500 ml round bottles were produced on a Bekum BAE 3 under the following conditions and with the following results

Example	1	2	3	4	CE 1
Base slot	150	150	150	150	200
Rotational speed [rpm]	17.7	17.7	17.7	17.7	—
Blowing time [sec]	15	14.0	12.0	11.2	12
Weight [g]	41.4	37.4	36.0	35.6	38
Wall thickness [mm]	1.2	1.00	0.90	0.85	—
Weld line thickness [mm]	2.0	2.0	1.0	1.0	(0.5) (V notch)
Melt fracture [score]	2	2	2	2	2
Fisheyes [score]	2	2	2	3	1
Note	matt	matt	matt	matt	matt

It can be seen that the moulding compound according to the comparative example forms an excessively thin weld line, which in addition has a V notch, which represents a weak point which may burst under pressure load.

What is claimed is:

1. A polyethylene molding compound which comprises

(A) from 30 to 60% by weight of low-molecular-weight ethylene homopolymer A which has a viscosity number VN_A in the range from 40 to 150 cm³/g,

(B) from 30 to 65% by weight of high-molecular-weight copolymer B comprising ethylene and a further olefin having from 4 to 10 carbon atoms which has a viscosity number VN_B in the range from 150 to 800 cm³/g, and

(C) from 1 to 30% by weight of ultrahigh-molecular-weight ethylene homopolymer or copolymer C which has a viscosity number VN_C in the range from 900 to 3000 cm³/g and the molding compound has a multimodal molecular weight distribution which has an overall density of ≧0.940 g/cm³ and an $MFI_{190/5}$ in the range from 0.01 to 10 dg/min.

2. The polyethylene molding compound according to claim 1, which has excellent convertibility into hollow articles, expressed by a swelling rate in the range from 100 to 300%.

3. A method for the production of the polyethylene molding compound according to claim 1, which comprises carrying out the polymerization of the monomers in suspension at a temperature in the range from 20 to 120° C., a pressure in the range from 2 to 60 bar and in the presence of a Ziegler catalyst which comprises a transition-metal compound and an organoaluminium compound, and the polymerization is carried out in three steps, with the molecular weight of the polyethylene produced in each step in each case being regulated with the aid of hydrogen.

4. The method as claimed in claim 3, wherein the polymerization is carried out in a cascaded suspension polymerization.

5. The polyethylene molding composition according to claim 1, wherein the multimodal molecular weight distribution is a trimodal molecular weight distribution.

6. The polyethylene molding composition according to claim 1, wherein the further olefin is in an amount up to 5% by weight.

7. The polyethylene molding composition according to claim 1, wherein the molding composition contains up to

10% by weight of one or more comonomers selected from the group consisting of 1-butene, 1-pentene, 1-hexene, 1-octene and 4-methyl-1-pentene.

8. The molding compound according to claim 1, wherein the molding compound has a viscosity number VN_{tot} in the range from 190 to 700 cm^3/g.

9. The molding compound according to claim 1, wherein the molding compound has a viscosity number VN_{tot} in the range from 250 to 500 cm^3/g.

10. An article which comprises the molding composition according to claim 1.

11. The article as claimed in claim 10, wherein the article is a fuel tank, canister, drum or bottle.

12. A process to make an article which comprises plasticating the polyethylene molding composition according to claim 1 in an extruder at temperatures in the range from 200 to 250° C. and then extruding through a die into a blow mold and cooling therein.

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